

REMARKS

Claims 1-26 were present in the application and stand rejected. By the foregoing amendments, the limitations of original Claims 2 and 15 have been incorporated into independent Claims 1 and 14, respectively. Remaining Claims 1, 3-14, and 16-26 are believed to be in condition for allowance in view of the foregoing amendments and following comments. Reconsideration is respectfully requested.

Rejection of Claims Under 35 U.S.C. § 103

The Examiner has rejected Claims 1-26 under 35 U.S.C. § 103 as being unpatentable over Muck and Kung Jr. et al. taken with Helle et al. or Ooshima et al. each taken with Madamwar et al. and Oakes et al., and if necessary in view of Castanon et al. or Jouany. This rejection is respectfully traversed.

The invention of applicants' amended claims relates to feed additives and methods for enhancing feed utilization by a ruminant animal by adding to the feed of the animal a feed additive comprising a nonionic surfactant and a sufficient amount of an antioxidant agent to enhance the oxidative stability of the nonionic surfactant. The invention disclosed and claimed in the present application is related to the invention of prior Application No. 404,971 filed September 24, 1999 (now U.S. Patent No. 6,221,381), but adds to the invention of that patent the use of an antioxidant agent to overcome some of the problems encountered in the use of the invention of Patent No. 6,221,381.

None of the references cited by the Examiner in rejecting claims of the present application disclose or remotely suggest methods or feed additives for enhancing feed utilization efficiency by a ruminant animal by adding to the feed of the animal a sufficient amount of a nonionic surfactant to enhance feed utilization efficiency of the animal and a sufficient amount

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of an antioxidant agent to enhance the oxidative stability of the nonionic surfactant as required by applicants' amended claims.

Muck and Kung Jr. et al. disclose fermentation reactions in silage production. Neither reference discloses nor remotely suggests the use of a nonionic surfactant and an antioxidant agent in a feed additive and then adding the feed additive to the feed of a ruminant animal as claimed in applicants' amended claims.

Helle et al. discloses the effects of various surfactants on the heterogeneous enzymatic hydrolysis of cellulose in steam-exploded wood. This reference does not disclose or remotely suggest the use of a nonionic surfactant on an antioxidant agent in a feed additive and then adding the feed additive to the feed of a ruminant animal as claimed in the present application.

Ooshima et al. discloses the enhancement of enzymatic hydrolysis of cellulose with various surfactants, including Tween 80. Again, this reference does not disclose or remotely suggest the use of a feed additive comprising a nonionic surfactant and an antioxidant agent and adding the feed additive to the feed of a ruminant animal as claimed in applicants' amended claims.

Madamwar et al. discloses the use of various surfactants, including Tween 60 and Tween 80, to affect various parameters in the anaerobic digestion profiles of water hyacinth-cattle dung. In the study of Madamwar et al., in vitro, bench-scale anaerobic digesters were fed on a semi-continuous basis with a powdered mixture of water hyacinth and cow dung with the surfactants being added to the sludge. There is no disclosure or remote suggestion in this reference of the use of a nonionic surfactant and an antioxidant agent in a feed additive and then adding the feed additive to the feed of a ruminant animal to obtain enhanced feed utilization efficiency as claimed in applicants' amended claims.

Oakes et al. discloses administering certain nonionic surfactants to control bloat in ruminants, such as cattle. Oakes et al. does not disclose or suggest the use of a nonionic surfactant together with an antioxidant agent as a feed additive to enhance feed utilization efficiency as required by applicants' amended claims.

Castanon et al. describes various effects of Tween 80, applied in liquid form, on the enzymatic hydrolysis of newspaper. Jouany discloses manipulating the microbial metabolism and the rumen with various chemical additives, including antibiotics, methane inhibitors, inhibitors of proteolysis or deamination, as well as other agents. In addition, this reference discusses the effects of the elimination of rumen protozoa and anaerobic fungi from the rumen. Neither reference discloses or remotely suggests the invention of applicants' amended claims.

Chalupa et al. discloses orally administering a diphenyliodonium salt with a veterinary or feed carrier to a ruminant animal. This reference does not remotely suggest the use of a nonionic surfactant together with an antioxidant agent in a feed additive as required by applicants' amended claims.

As set forth above, none of the references cited by the Examiner, alone or in any combination, remotely suggest applicants' discovery that feed utilization efficiency in ruminant animals can be significantly enhanced by adding to the feed of the animal effective amounts of a nonionic surfactant together with an antioxidant agent. Accordingly, it is respectfully submitted that the invention of applicants' amended claims is not obvious within the meaning of 35 U.S.C. §103 in view of any combination of these references.

Obviousness-Type Double Patenting

The Examiner has further rejected original Claims 1-26 on the ground of nonstatutory obviousness-type double patenting over Claims 1-10 of U.S. Patent No. 6,221,381.

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As set forth above, the invention of applicants' amended claims is related to that of U.S. Patent No. 6,221,381, but is distinguished therefrom by requiring the presence of both a nonionic surfactant and an antioxidant agent in the claimed feed additive and methods. The requirement of an antioxidant agent in the amended claims of the present application would not have been obvious over the claims of the '381 patent, and it is believed that the Examiner's rejection of claims on this basis should properly be withdrawn.

Conclusion

In view of the foregoing amendments and comments, it is believed that amended Claims 1, 3-14, and 16-26 are in condition for allowance. Reconsideration and favorable action are requested.

Respectfully submitted,

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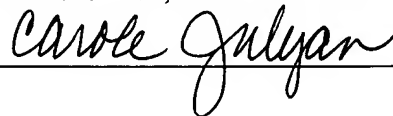
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